

SUPPORT FOR THE AMENDMENT

This Amendment amends Claims 11 and 43; and adds new Claims 49-50. Support for the amendments is found in the specification and claims as originally filed. In particular, support for new Claim 49 is found in the specification at least at page 6, lines 9-15. Support for new Claim 50 is found in the specification at least at page 6, lines 16-24, and page 11, lines 15-16. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 11-14, 43-46 and 48-50 will be pending in this application. Claim 11 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides a hard-drawn steel wire allowing springs made of the wire to exhibit excellent fatigue strength and sag resistance even without subjecting a drawn wire to quenching and tempering treatments. Specification at page 1, lines 7-9. The hard-drawn wire consists of ferrite and/or pearlite, contains C in an amount of 0.5 - 0.68 mass%, and comprises 5 particles/ $100\mu\text{m}^2$ or less of carbides wherein the circle-equivalent diameters of the carbides are more than 0.1 μm . The C content of 0.68 mass% or less inhibits fracture in performing works and the occurrence of cracks that deteriorate fatigue life. Specification at page 4, lines 4-6. The limited number of large carbides in the hard-drawn wire, which consists of ferrite and/or pearlite, provides improved fatigue strength and sag resistance equal or superior to that of an oil-tempered wire consisting of tempered martensite generated by the quenching and tempering treatment. Specification at page 2, lines 13-16; page 3, lines 15-25.

Claims 11-14, 43-46 and 48 are rejected under 35 U.S.C. §103(a) over Japanese Patent No. 7-90495 ("JP-495") and in view of U.S. Patent No. 6,645,319 ("Nagao") or Japanese Patent No. 8-120407 ("JP-407").

JP-495 discloses a steel wire containing **0.7-1.0 wt% C** and 0.05-1.0 vol% of **carbide** of V or Nb having a size of **0.1 μm or less**. JP-495 discloses that C less than 0.7 wt% causes deterioration of strength (JP-495 at column 2, line 40) and the size of carbide of V or Nb more than 0.1 μm impairs workability (JP-495 at column 3, lines 10-11).

JP-495 is silent about carbides having a size of more than 0.1 μm . JP-495 fails to suggest the independent Claim 11 limitations of a "hard-drawn steel wire comprising: **C: 0.5 - 0.68 mass%** ... , said wire ... further comprising 5 particles/100 μm^2 or less of carbides wherein the circle-equivalent **diameters of the carbides are more than 0.1 μm** ".

In the present invention, despite a lower C content (0.5 to 0.68%) compared to that of JP-495 (0.7-1.0%), the existence of larger carbides than those of JP-495, which causes a decrease of C content, is allowed. Because it is allowed, in order to suppress the further decrease of the lower C content, the allowable range is restricted to 5 particles/100 μm^2 or less.

Accordingly, based on the carbides of JP-495, a person skilled in the art would not reach the carbides in the present invention in which the existence in the larger size of more than 0.1 μm is allowed and concurrently such larger carbides are restricted to a specific level to thereby suppress the decrease of the lower C content.

Nagao discloses a wire rod for drawing that contains 0.65 to 1.2 mass% C. Nagao at abstract, column 3, line 46. However, as discussed above, JP-495 discloses that C less than 0.7 wt% causes deterioration of strength. JP-495 at column 2, line 40. Thus, there is no motivation to combine Nagao with JP-495, and no reasonable expectation that the skilled

artisan would combine Nagao with JP-495 to reach the independent Claim 11 limitation of "C: 0.5 - 0.68 mass%".

JP-407 discloses that carbides in JP-407 are in the form of cementite crystal grain in a lamellae cementite. JP-407 at, e.g., [0013]. Therefore, the carbides of JP-407 cannot be combined with JP-495 in which carbides precipitating in a cementite are not involved (see, e.g., Japanese language specification of JP-495 at column 3, lines 7-8). Even if the carbides of JP-407 are combined with JP-495, the resultant combination would still fall short of yielding the carbide of the present invention which do not include any cementite phase (see definition of "carbide" in specification at page 3, lines 26-27).

Because the cited prior art fails to suggest all the limitations of independent Claim 11, and there is no reasonable expectation of success, the rejection under 35 U.S.C. §103(a) should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

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